

COMPOSITIONS AND METHODS FOR DETERMINING  
ANTI-VIRAL DRUG SUSCEPTIBILITY AND RESISTANCE  
AND ANTI-VIRAL DRUG SCREENING

5     **Abstract of the Disclosure**

10     This invention provides a method for determining  
susceptibility for an anti-viral drug comprising: (a)  
introducing a resistance test vector comprising a patient-  
derived segment and an indicator gene into a host cell; (b)  
15     culturing the host cell from (a); (c) measuring expression  
of the indicator gene in a target host cell; and (d)  
comparing the expression of the indicator gene from (c) with  
the expression of the indicator gene measured when steps  
(a)-(c) are carried out in the absence of the anti-viral  
20     drug, wherein a test concentration of the anti-viral drug is  
present at steps (a)-(c); at steps (b)-(c); or at step (c).  
This invention also provides a method for determining anti-  
viral drug resistance in a patient comprising: (a)  
determining anti-viral drug susceptibility in the patient at  
25     a first time using the susceptibility test described above,  
wherein the patient-derived segment is obtained from the  
patient at about said time; (b) determining anti-viral drug  
susceptibility of the same patient at a later time; and (c)  
comparing the anti-viral drug susceptibilities determined in  
30     step (a) and (b), wherein a decrease in anti-viral drug  
susceptibility at the later time compared to the first time  
indicates development or progression of anti-viral drug  
resistance in the patient. This invention also provides a  
method for evaluating the biological effectiveness of a  
candidate anti-viral drug compound. Compositions including  
resistance test vectors comprising a patient-derived segment  
and an indicator gene and host cells transformed with the  
resistance test vectors are provided.